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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

RECOMMENDATIONS

FOR LAKE TAHOE INSECT CONTROL

1931

by

GEORGE R. STRUBLE
Assistant Entomologist

Berkeley, California
October 3 1931

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LAKE TAHOE INSECT CONTROL RECOMMENDATIONS 1931

Insect infestations in the Lake Tahoe region showed a definite increase during 1931, especially on the south end of the lake and in Lake Valley, as a result of 1930 attacks. An investigation of this condition was made by A.N. Weber and R. Bryan of the Forest Service on June 19, and it was reported that a considerable amount of damage was being done to Jeffrey pine, white fir and red fir. Four trees near the home of Mrs. Baldwin were killed by Dendroctonus jeffreyi, and these were treated at that time. Young Jeffrey pine stands in the Lake Valley area were reported to have lost from 30 to 80 per cent of their foliage. Considerable twig killing in red fir was found in young, thrifty trees on the Baldwin estate and near Fallen Leaf Lodge.

The work of the beetles and the damage was shown Mr. Knisley, Mrs. Baldwin's manager, who, realizing the importance of the situation, decided to see other property owners for the purpose of establishing a cooperative fund for insect control.

Conditions Found, Survey September 1-8, 1931

The Forest Service asked for the cooperation of the Bureau of Entomology in making a survey of this region. During the first week of September A.N. Weber of the Forest Service and G.R. Struble of the Bureau of Entomology made a trip to Lake Tahoe, and a general reconnaissance was made on all areas surrounding the south end of the lake, Lake Valley, and areas surrounding Fallen Leaf Lake. A trip also included Kingsberry Grade and Kings Canyon, to obtain an idea of infestations there. Counts of recently-killed trees were made along roads, and it was found that losses were confined largely to Jeffrey pine and white fir. Counts on both species, however, represented losses which had occurred during 1930. Only a few Jeffrey pine trees attacked during 1931 had begun to fade, and this condition was also true of white fir.

As a result of this reconnaissance a definite idea was obtained of the concentration of insects. Areas containing the heaviest losses were found in the lower part of Fallen Leaf basin between Fallen Leaf Lake and Lake Tahoe, particularly in that portion north of Fallen Leaf Lake and extending to Lake Tahoe. Counts of trees along roads in this area, which is embraced by the Baldwin Estate, resulted in 60 Jeffrey pine which were killed during 1930. The infestation was not found serious in areas surrounding Fallen Leaf Lodge. The insect loss on the other areas was not found great enough to cause much concern.

Although considerable damage was done to white and red fir in the Tahoe vicinity in 1929 and 1930, very few new trees had shown up on any of the areas at the time of this survey.

Baldwin Estate Survey

A survey was planned for the Baldwin property as a preliminary step to the control of the Jeffrey pine beetle, Dendroctonus jeffreyi, as a result of the above reconnaissance. On September 16 G.R. Struble and Albert Wagner, both of the Bureau of Entomology, arrived, and a survey was begun. The cruise was made by running strips every 10 chains. All infested trees were blazed and numbered on the north side with black crayon. Each tree was located on a map of the area. On the blueprint map attached to this report the location of each tree is shown by a dot and the number with which the tree was marked. This survey was completed September 21 and resulted in the finding of a considerable infestation in lodgepole pine in addition to Jeffrey pine. The heaviest infestations were found on the west half of the estate toward the north end. The following table is a summary of losses for Jeffrey pine and lodgepole pine which were killed during the 1931 season. Most of these trees were still green when the survey was made:

<u>Species</u>	<u>Number of Trees</u>	<u>Volume Board Feet</u>
Jeffrey pine	34	111,230
Lodgepole "	<u>32</u>	<u>5,430</u>
Totals	66	116,660

Recommendations for Control

Conditions are such in the Fallen Leaf Basin that the control of insects is possible as a unit. Surrounded on all sides by steep slopes, Mt. Tallac on the west, Angora Ridge on the east, this area can be treated without much danger of insects coming in from elsewhere. The Baldwin Estate, embracing areas between Fallen Leaf Lake and Lake Tahoe, with the lower part of Angora Ridge on one side and Mt. Tallac on the other, can be treated as a part of the Fallen Leaf Lake Unit without serious danger of infestation from outside sources. Since the infestations are localized on this area, control for the Jeffrey pine beetle (Dendroctonus jeffreyi Hopk.) and the mountain pine beetle (Dendroctonus monticolae Lec.) is recommended for this fall, as soon as the fire danger is reduced sufficiently to permit the burning of infested trees. This work can be continued early next spring before the broods develop to maturity. Control operations should be carefully supervised by a forest officer or some responsible person to see that the trees are properly treated. As control is carried out next spring it will be necessary to make further surveys to locate infested trees not found in the fall cruise. This survey should be undertaken by the Bureau of Entomology.

Control Methods

The treatment for lodgepole pine will be somewhat different from that required for Jeffrey pine, on account of size and thickness of bark. Most of the lodgepole pine trees are small, and can be readily felled without much damage to reproduction. The infested Jeffrey pine, on the other hand, are nearly all large trees, and felling will have to be done very carefully in order to minimize danger to undergrowth.

1. Lodgepole pine. All infested trees should be felled and limbed. Limbs should be piled near the trunk so that they can be set on fire, and the heat will scorch the bark and kill the broods beneath. Care should be taken not to build fires too large, since reproduction may be scorched. If danger of burning reproduction or scorching green trees nearby is too great, the trees should be treated by peeling the logs and exposing the broods to the weather. Ants and birds are effective predators and will usually feed on the exposed broods. It will be necessary either to scorch the bark or to expose the broods on all the infested bark surface. The labor costs of treating infested lodgepole pine is estimated at \$3.00 to \$4.00 per tree.

2. Jeffrey pine. All infested trees should be felled with great care to do as little damage as possible to reproduction. Limbs should be removed and piled. The bark is then removed on all infested parts of the trunk. If the under side of the log cannot be peeled, it will be necessary to set fires along this part to destroy the broods there. Jeffrey pine can best be treated in the fall, since in all instances burning will not be necessary at a time when there is danger of fire.

Due to the large size of infested Jeffrey pine on this area the cost of treatment will be considerably higher than for lodgepole. The cost is estimated at \$8.00 to \$10.00 per tree.

INSECT SURVEY - A.M. BALDWIN ESTATE
 SURVEY COMPLETED 9-21-31
 SCALE 2" = 1 MILE

